CRITERION
RESEARCH CORP.

WESTERN EQUINE ENCEPHALITIS PUBLIC INFORMATION PROGRAM EVALUATION SURVEY: FINAL REPORT

Prepared For: Manitoba Department of Health,
Communications and Information Services

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EXECUTIVE SUMMARY

This report presents the results of a survey designed to examine the results of a media campaign intended to promote awareness of the Western Equine Encephalitis problem in Manitoba this summer. Specifically, the objectives of the survey were:

(a) To assess public perceptions of the health risk presented by Western Equine Encephalitis,

(b) To assess public perceptions of the aerial spraying program,

(c) To identify the relative effectiveness of the different media used in the awareness campaign,

(d) To determine comprehension of the message elements, and

(e) To identify what, if any, behavioral impact the campaign produced.

To meet these objectives, telephone interviews were conducted with a sample of 1000 heads of households: 500 in Winnipeg, and 100 in each of five other Manitoba towns which were considered to be 'high risk' areas. The responses from these surveys were then coded, analyzed and tabulated for presentation in this report.

In brief, the main findings of the study were as follows:

- Awareness that mosquitoes presented a health problem in Manitoba this summer was very high. Three-quarters (77%) of respondents believed that mosquitoes represented a danger to people's health.

- In all, 79% of respondents identified encephalitis as a disease which mosquitoes in Manitoba carry and 66% said

they felt that it presented some risk to people in their community. Only a very few (12%) felt that Western Equine Encephalitis was not worth worrying about.

- Only about half of all respondents (48%) believed that there were certain age groups to whom encephalitis presented a special risk even though this figured prominently in the media campaign. Of those who did, however, most correctly answered that either "children" or "the elderly" were the age groups at risk.

- Most respondents (70%) reported taking precautions to avoid mosquito bites this summer. This was especially true among those with preschool children (85%).

- Almost everyone (97%) was aware of the aerial spraying in their communities, and most of them (80%) felt that they had been given sufficient notice of the spraying.

- Although almost everyone knew about the spraying, only about half said that they had taken precautions against the spray. Even among those with preschool children, less than two-thirds (61%) took precautions to avoid the spray.

- Recall of the public information campaign was very good. Eighty-two percent of respondents recalled hearing or seeing the announcements and 86% of those could recall something of their content.

- Those who recalled seeing or hearing the announcements were much more likely to indicate that there was a risk of contracting encephalitis than those who did not (70% vs. 46%) and they were also more likely to have taken precautions against being bitten (73% vs. 58%).

- Approximately equal numbers of respondents recalled seeing or hearing the announcements on radio and television (73% and 71% respectively) while fewer recalled seeing them in print (55%).

- There was also a very high level of recall of news reports on this issue (87%). Of those who recalled news reports, most said that the reports that they recalled were either related to the reporting of possible cases of the disease (52%) or information on the aerial spraying program (30%).

- On a set of ten attitude and knowledge items relating to this issue, the majority of respondents answered in the predicted direction. Only three questions showed less than very strong responses in the predicted direction and that was because people felt they were unable to answer them. For example, while 45% correctly answered that encephalitis symptoms do not appear within a day after being bitten, only 13% answered that they did. All the rest (42%) said that they did not know.

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INTRODUCTION

In the summer of 1983, the appearance of large numbers of mosquitoes carrying the Western Equine Encephalitis virus raised the threat of an outbreak of this potentially fatal disease in Manitoba. In response to this threat, the Manitoba Department of Health declared a health emergency and the provincial government initiated a program to reduce the risk of the disease by aerial spraying to control the mosquito population. Along with this effort to control the source of the disease, a campaign was also undertaken to provide Manitobans with information about the nature and intent of the Western Equine Encephalitis problem; the measures being taken to control it; and the personal precautions which individuals should take to avoid contracting the disease.

In order to determine the effectiveness of the media campaign, the Manitoba Department of Health commissioned a two-part study of its impact. The first part of this study, which has been described in a separate report, was a qualitative investigation utilizing a focus group methodology to examine in detail the nature of public reactions to the materials used. The second part, contained in this report, was a large scale population survey designed to assess public attitudes, knowledge and behavior with regard to the campaign and the aerial spraying program.

Objectives

To be specific, the present survey was designed to meet the following five objectives:

(a) To assess public perceptions of the health risk presented by Western Equine Encephalitis,

(b) To assess public perceptions of the aerial spraying program,

(c) To identify the relative effectiveness of the different media used in the awareness campaign,

(d) To determine comprehension of the message elements, and

(e) To identify what, if any, behavioral impact the campaign produced.

In the report which follows the ways in which these questions were addressed in this survey and the answers which were found will be discussed in some detail. In addition, a complete set of detailed tables is provided in a separate volume for the reader who wishes to examine the results more closely.

II. METHODOLOGY

The survey methodology used in this study was essentially simple. The sample size of 1000 was divided into six groups, five hundred to be drawn from Winnipeg and one hundred from each of the following five towns: Brandon, Dauphin, Portage La Prairie, Morden, and Selkirk. Within each area, a further quota of 50% males and 50% females was used. A sample frame reflecting these quotas was developed based on a systematic random sampling from telephone directories, and 1000 interviews were conducted with respondents drawn from that frame. The specific details associated with the design of the survey and the analysis of the results are described below.

Questionnaire Design

The questionnaire used in this study was designed in consultation with representatives of the Department of Health and the Manitoba Bureau of Statistics. Draft questionnaires were discussed with the client and various revisions were made to reflect specific concerns of the client. A final draft was then pre-tested on a small sample of respondents and some minor revisions were made to improve the clarity of the questions and the flow of the interview as a whole. A complete copy of the final version of the instrument used is included in the Appendix.

TABLE 1

SAMPLE CHARACTERISTICS

AGE:	18 - 24	8.7%
	25 - 39	41.3%
	40 - 64	34.8%
	65 and over	14.6%
	Not stated	0.6%
HOUSEHOLD SIZE	1 Person	12.5%
	2 People	32.5%
	3 - 4 People	41.4%
	More than 4	13.4%
	Not stated	0.2%
PRESCHOOL CHILDREN	Yes	21.6%
	No	78.1%
	Not stated	0.3%

Sampling

The target population for this survey was defined simply as the population of Manitoba households. Within a given household, either the male or female head of the household was eligible to answer the questions on the survey, subject to the quotas referred to above.

Because the interest in this survey centred on reactions to the Western Equine Encephalitis problem, persons who denied having even heard of the problem were excluded from answering the survey. In all, only 42 people were excluded on this basis.

The sample frame for the study was created through systematic random sampling from the Winnipeg and rural telephone directories. In the case of Winnipeg, the last digit of each number selected was replaced with a random number to ensure that the sample fairly represented all households in the city. The composition of the sample which this method produced is shown in Table 1.

Data Collection

The 1000 telephone interviews were conducted during the period from September 18 to September 28 by trained interviewers working from Criterion's central telephone facility in Winnipeg. All interviews were conducted during the evening hours and a minimum of three callbacks to "not at homes" was employed.

When contacting a household, the interviewer would identify him or herself as an employee of Criterion Research Corp. and inform the person contacted that this survey dealt with opinions

regarding some public health issues. The interviewer then asked to speak with either the male or female head of the household. When that person was reached, the interview proceeded.

Analysis

Immediately after completion, each questionnaire was edited for completeness and accuracy. The completed questionnaires were then coded and converted into machine readable form for analysis. To ensure the integrity of the data, verification procedures were used at each step of the process.

The analysis for this report consisted primarily of detailed cross-tabulations of responses to each question by respondent characteristics such as age, sex, household size, and area of residence, as well as by answers to selected questions. In what follows, we will very briefly discuss the main findings which arise from this analysis. Those who wish more information on any of the points raised are invited to refer to the detailed tables.

Before turning to these results, however, a brief digression concerning statistical significance is in order. In the text, no references are made to statistical significance <u>per se</u> because such references can, at times, be very misleading. For a given sample size, it is possible to set what are called confidence bounds or limits around an observed percentage and assert that such limits are correct 95 (or 90, or whatever) percent of the time. These are valuable indicators of the reliability of the observed results, and they should always be considered when

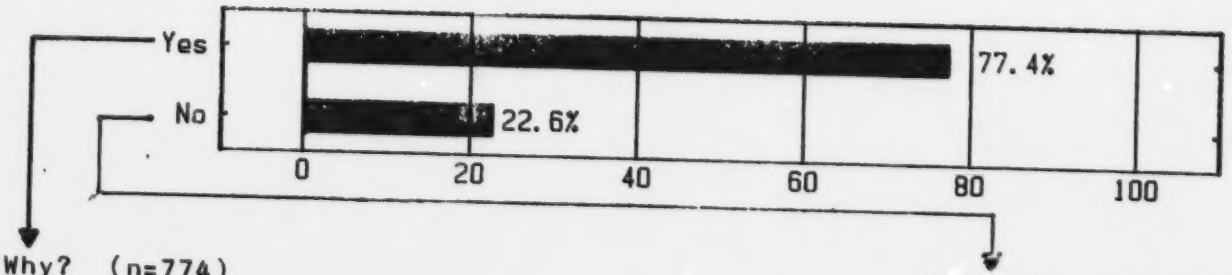
looking at survey results because such intervals will vary dramatically by sample size or cell size in a table (a table of these intervals is, therefore, provided in the Appendix for reference purposes). Having said that, we must also point out that the one very real problem with such tables is that they do not provide any indication of whether an observed percentage is meaningful. That depends upon the context and the interpretation which will be made, not just the confidence level. For this reason, we have chosen to eliminate references to statistical significance and to focus instead on descriptive statistical results.

FIGURE 1

UNAIDED AWARENESS OF HEALTH RISK

Question 1:

Do you think that mosquitoes actually represent a danger to people's health?



Why? (n=774)

Encephalitis	65.1%
They transmit disease	11.2%
Government information	5.3%
Bites cause infections	3.4%
Bites cause distress	3.0%
Others	8.6%
Not Stated	3.4%

Why Not? (n=226)

No health hazard	13.3%
Never had a problem	11.9%
Few reported cases of W.E.E.	8.0%
W.E.E. link not proven	7.1%
Mosquitoes are always here	5.8%
More of a nuisance	5.3%
Less dangerous than spray	4.4%
Can take precautions	4.0%
Others	11.0%
Not Stated	29.2%

III. RESULTS

In what follows, the main findings of this survey are presented in summary form. For convenience, the order of presentation will follow the order in which the questions were asked. First, we will present the results for the questions on general awareness of the encephalitis problem, followed by those for the questions on aerial spraying; those for the questions on recall of media coverage; and finally, those for the questions on relevant attitudes and beliefs. In addition, graphic illustrations of most findings will be presented to highlight results.

General Awareness

As Figure 1 shows, awareness that mosquitoes presented a health problem was very high. Overall, just over three-quarters (77%) of respondents believed that mosquitoes did represent a danger to people's health and, of those, two-thirds specifically mentioned encephalitis as the reason for that belief.

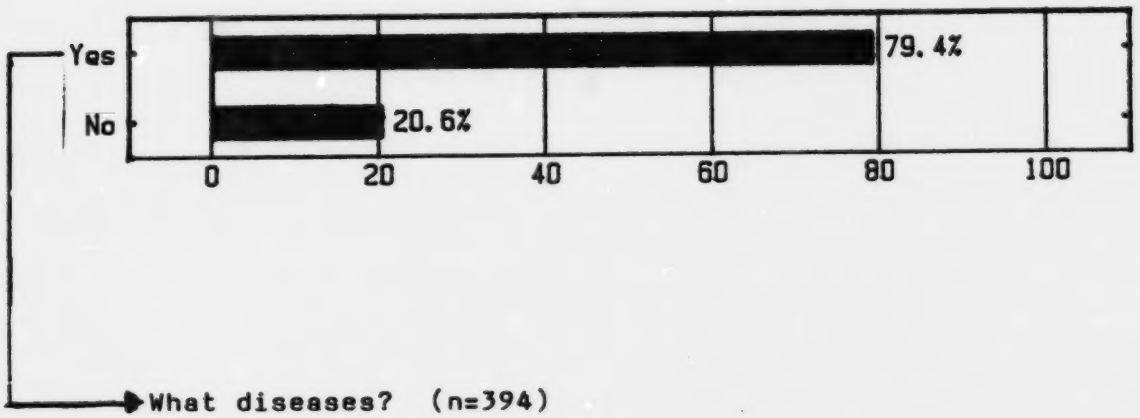
While the levels of belief were quite high in all the various sub-groups examined in this analysis, there were some differences between groups which are worth noting. For example, Brandon (74%), Morden (72%), and Dauphin (71%) residents were less likely to answer "yes" to this question than were those in Selkirk (77%), Portage (79%), or Winnipeg (80%). Women (82%), those in the

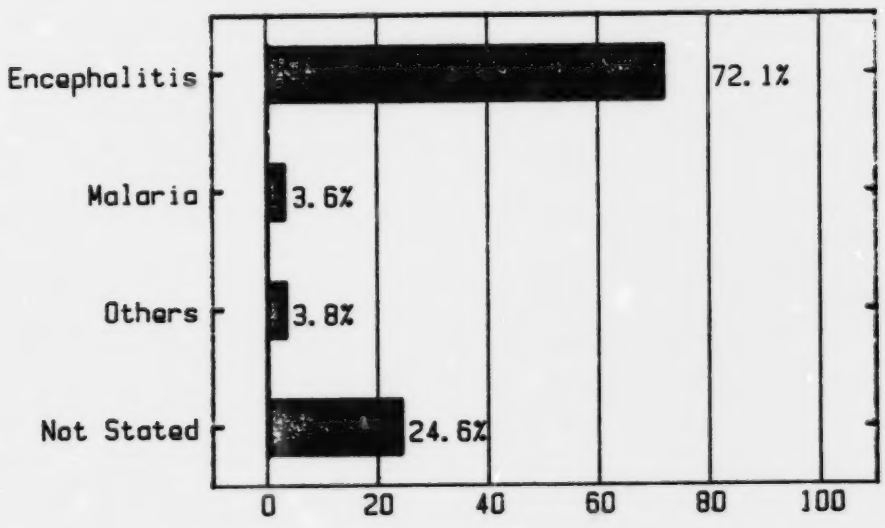
FIGURE 2

UNAIDED AWARENESS OF MOSQUITO-BORNE DISEASES

Question 3:

Do you think that mosquitoes in Manitoba can spread any disease dangerous to people? (n=496)





middle age groups (79%), and those with pre-school children (81%) were also especially likely to believe that mosquitoes represent a health risk.

As we noted above, two-thirds of the people who felt that mosquitoes are a health hazard attributed it to their transmission of Western Equine Encephalitis. To get an idea of the extent to which the rest of the respondents were aware of the problem, they were asked whether they believed that mosquitoes in Manitoba spread any dangerous diseases, and if so, which ones. The results for this question are shown in Figure 2.

As this figure shows, awareness of encephalitis was again very high. In all, counting the results from both questions together, only about one person in ten (10.2%) did not believe that mosquitoes spread diseases in Manitoba and a full four-fifths (79%) of all respondents mentioned Western Equine Encephalitis without prompting in response to one of these questions. Clearly, then, general awareness of the existence of this health problem must be considered to have been very high this summer.

Three other issues which were included in this section of the questionnaire are discussed briefly below.

1. <u>Perception of Risk</u>

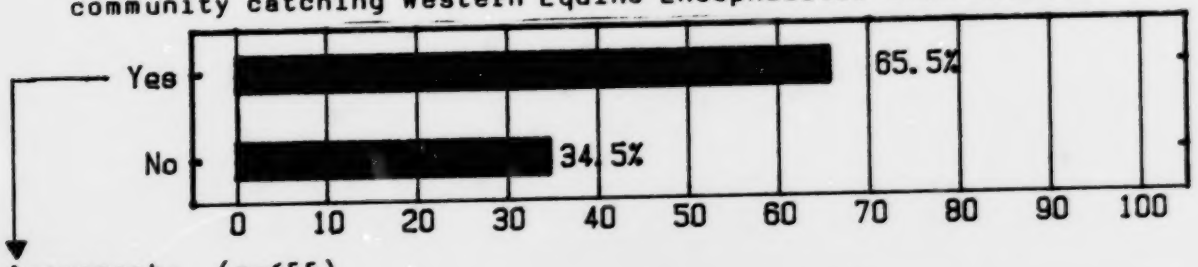
In addition to determining that people were aware of the Western Equine Encephalitis problem, it was necessary to ask whether they believed that it presented a real health risk to

FIGURE 3

PERCEIVED RISK OF CONTRACTING WESTERN EQUINE ENCEPHALITIS

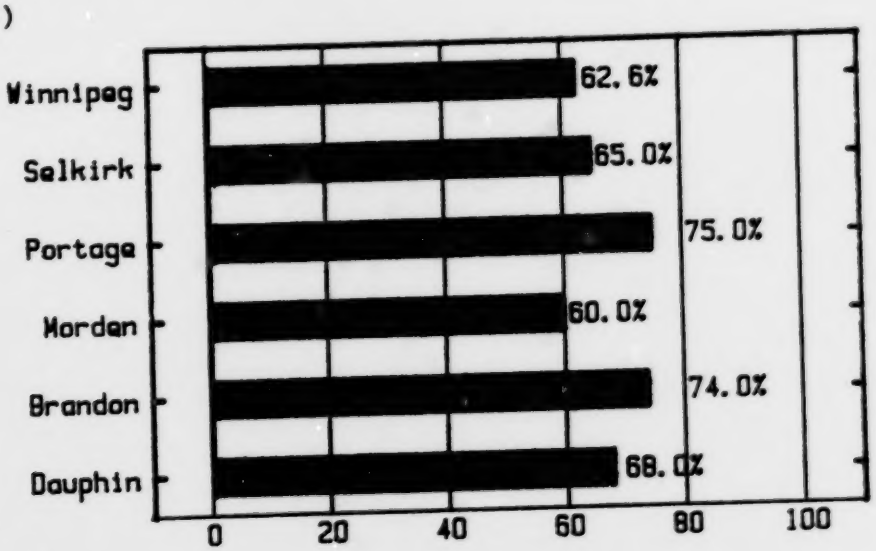
Question 6:

Do you think that there was any risk of people in your community catching Western Equine Encephalitis this summer?

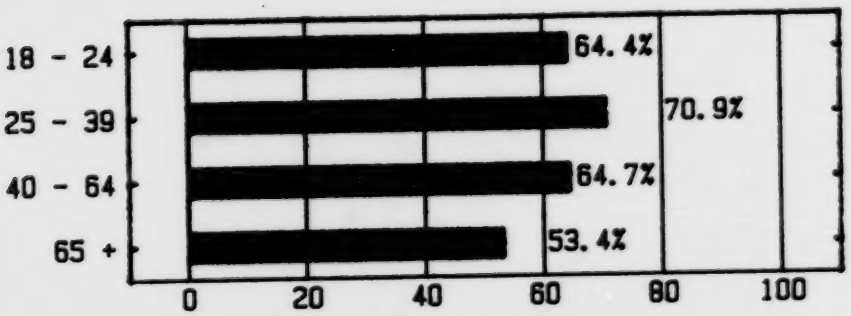


Agreement: (n=655)

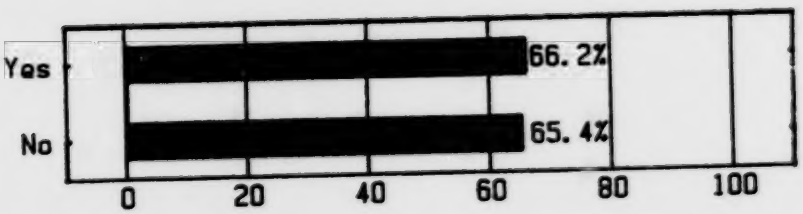
By Location



By Age



By Preschoolers



people in their community. As Figure 3 shows, the answers to this question were generally positive, with almost two-thirds of respondents (66%) saying they felt that there was a risk of catching encephalitis this summer.

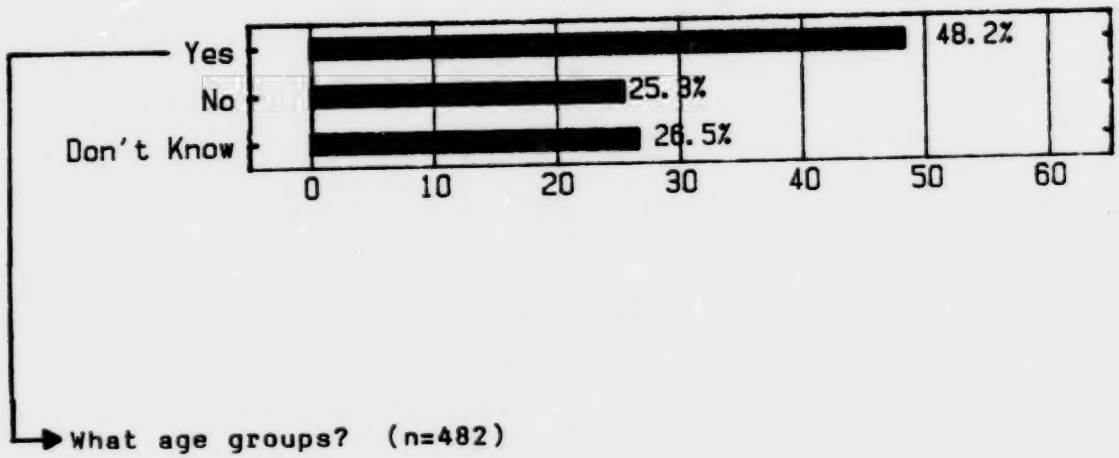
There were some pronounced differences between groups on this issue. The elderly and those who lived alone were least likely to believe that there was any risk of catching encephalitis (53% and 52% respectively) while residents of Portage and Brandon were most likely to identify this risk (75% and 74% respectively). Curiously, however, given the emphasis which was placed on warning that the disease was especially dangerous to very young children, there was no difference found between those with preschool children and those without preschool children on this question.

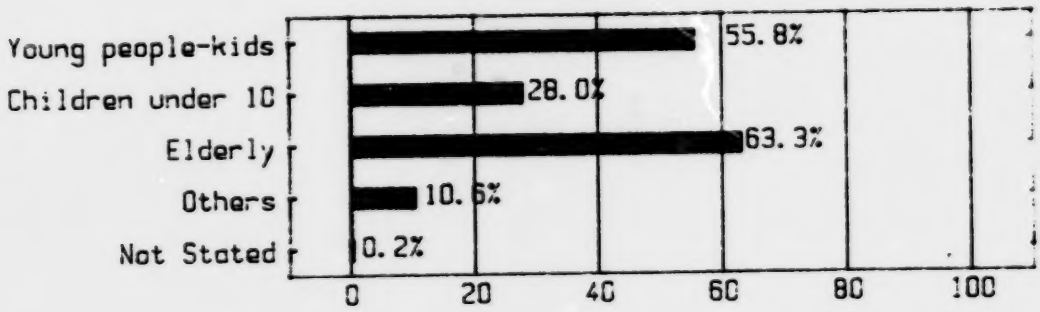
FIGURE 4

AGE GROUPS SUSCEPTIBLE TO WESTERN EQUINE ENCEPHALITIS

Question 7(a):

Are there any age groups in particular that this encephalitis is especially dangerous to?





2. Identification of Age Groups at Risk

Because some emphasis was placed on communicating the increased severity of this disease for the very young and the very old, respondents were asked whether encephalitis was more dangerous to certain age groups and, if so, to identify them. The results for this question are shown in Figure 4.

As this graph shows, only about half (48%) of the respondents felt that there were specific age groups for whom encephalitis was especially serious. Answers to this question showed very large differences between groups. For example, levels of agreement ranged from 37 - 38% in Dauphin, Morden and Selkirk; to 48 - 49% in Brandon and Portage; and to 54% in Winnipeg. There were even larger differences found in relation to age (59% in the under 40 age group vs. 30% in the over 65 group), and a somewhat smaller difference found in relation to the presence of preschoolers in the household (59% among households with preschoolers vs. 46% among those without).

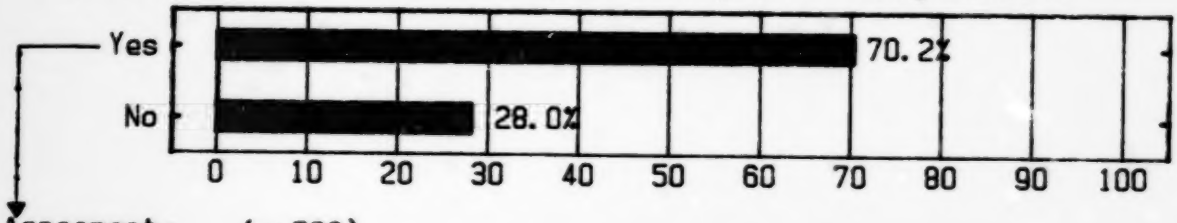
In looking at the answers to this question, it seems that the intended message was well received. Altogether, 84% of those who answered this question mentioned "young children" or "children under 10" while 63% mentioned the elderly. As a cautionary note, however, it should be pointed out that this probably overstates the degree of actual message recall since this is the type of question for which an answer of "young children" or "the elderly" could have been expected even if there had been no informational campaign.

FIGURE 5

PRECAUTIONS TAKEN TO AVOID MOSQUITO BITES

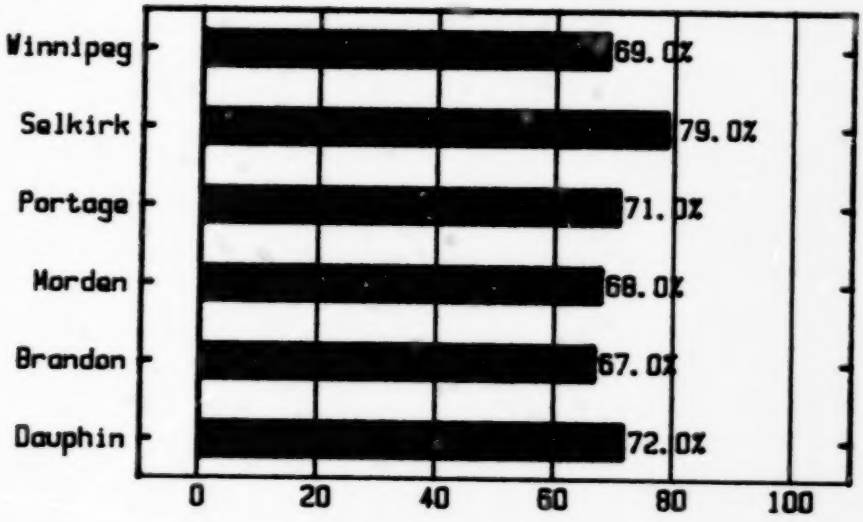
Question 8(a):

Did you personally take any precautions to avoid being bitten by mosquitoes or to protect your family from being bitten?

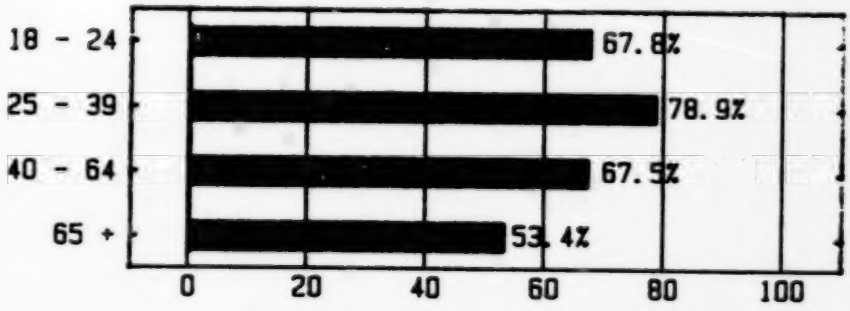


Agreement: (n=702)

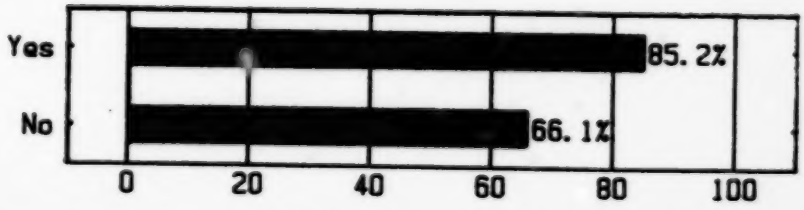
By Location



By Age



By Preschoolers



3. Personal Precautions

The last issue covered in this section dealt with personal precautions taken to avoid mosquito bites. As Figure 5 shows, most respondents did take precautions (70%). There were several large differences between groups here. Those in the 25 - 29 age group (79%), those with larger households (3 or more people; 79%) and those with preschool children (85%) were especially likely to report having taken precautions against mosquito bites.

It should be emphasized that not all of this can be attributed to concern about encephalitis. Even when there is no threat of mosquito-borne disease, people do quite reasonably attempt to avoid being bitten by mosquitoes. Nonetheless, the fact that people who believed that there was a risk of encephalitis were more likely to take precautions than those who did not believe there was any risk (75% vs. 61%) is an indication that concern about the disease did promote personal precautions.

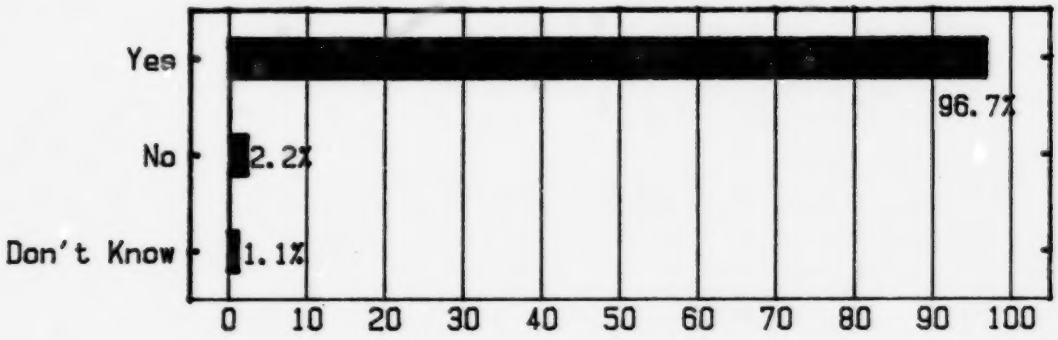
Finally, it is worth noting that the most frequently mentioned precautions - using insect repellent (58%), staying indoors (15%), wearing appropriate clothing (12%), and avoiding the outdoors around sunset (8%) - were those which had been promoted during the media campaign.

FIGURE 6

AWARENESS OF AERIAL SPRAYING PROGRAM

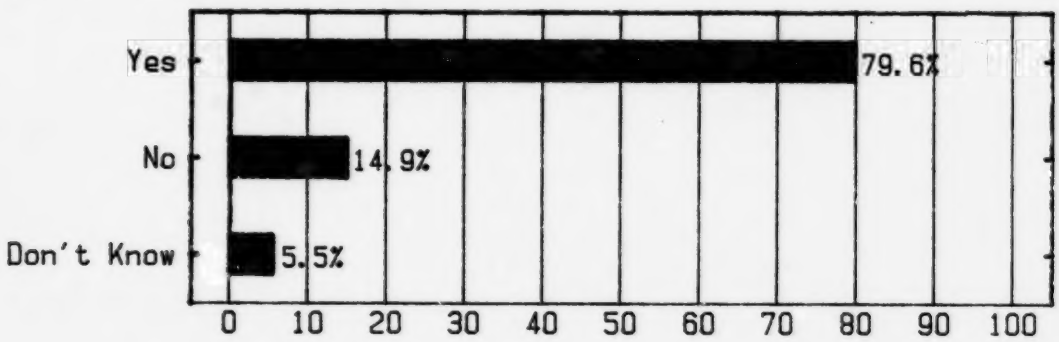
Question 9(a):

Was an aerial spraying program to kill mosquitoes conducted in your community this summer? (n=1000)



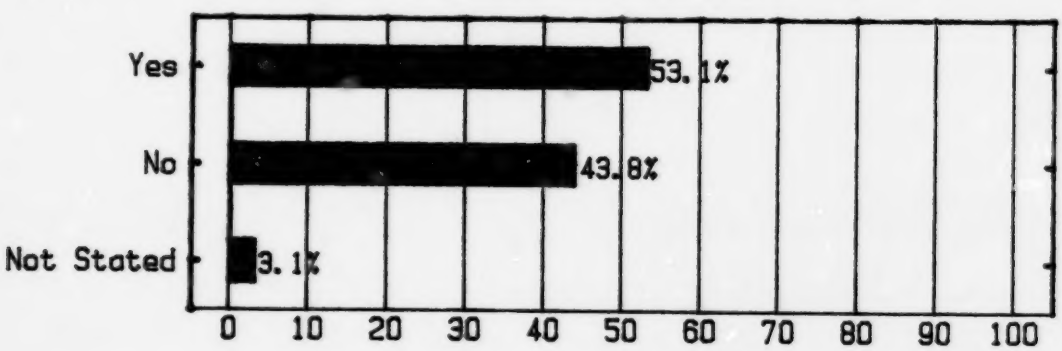
Question 9(c):

Did you feel that you were given enough advance notice of the spraying? (n=967)



Question 9(d):

Did you personally take any precautions to avoid having yourself or your family exposed to the spray?



The Aerial Spraying Program

Based on the evidence from this survey, it must be said that public awareness of the aerial spraying program was outstanding; 97% of all respondents indicated that they were aware of the aerial spraying program (see Figure 6). Even though there were some sub-groups which showed relatively low levels of awareness, (e.g. 92% among those 18 - 24), their absolute levels of awareness were still very high.

A more specific indication of this high level of awareness comes from a question concerning the chemical used in the program. Here, almost half (48%) of all respondents who were aware of the spraying knew that malathion was the chemical used. This is a respectable level of awareness on what can be considered a somewhat difficult question.

As a measure of the effectiveness of that component of the media campaign which dealt with the actual spraying times and locations, respondents were then asked whether they felt that they had sufficient warning of the spraying. Here again, the response was very positive, with 80% of respondents indicating that they had been given sufficient advance notice of the spraying. There were several interesting differences between groups on this question. Residents of Morden, for example, were less likely than most to feel that they had sufficient advance notice (70%), while those in Selkirk were more likely to say they were given adequate notice (89%). Probably the most interesting difference, however, was that those who subsequently said that they had taken

precautions to avoid being sprayed were less likely to feel that they had enough advance notice (76% vs. 85%). While this is suggestive, it should be noted that, in total, only 73 people out of 1000 indicated both that they did not take any precautions and that they had not had enough notice of the spraying.

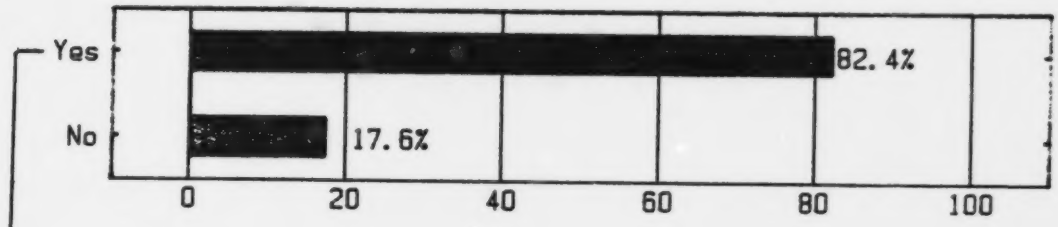
As the bottom graph on Figure 6 shows, only about half of the people surveyed did take precautions to avoid exposure to the chemicals utilized during the aerial spraying operations. Most who did said they "stayed indoors" or "left the area". Again, there were several differences among subgroups. Curiously, Dauphin residents were especially less likely to have taken precautions (only 25% said "yes") even though they generally felt they had sufficient warning. More interesting was the fact that those with preschool children were most likely to have taken precautions to avoid the spray (61% said "yes") although even this does not appear as high a level of concern as might be expected.

FIGURE 7

RECALL OF PUBLIC INFORMATION ANNOUNCEMENTS

Question 10a:

Do you recall any public information announcements which talked about Western Equine Encephalitis or the mosquito abatement program?



Message Recalled - Total Mentions (n=824)

	(%)*
Warned people to be careful, to take precautions	33.1
Encephalitis is a dangerous disease	23.5
Specific Precautions	26.7
Wear appropriate clothing (10.0%)	
Avoid outdoors at sunset (4.7%)	
Stay inside (7.4%)	
Use repellent (4.6%)	
Mosquitoes are dangerous - carry disease	9.6
Spray Information	45.5
Location (7.7%)	
Purpose (7.3%)	
Safety (1.5%)	
Precautions (6.6%)	
Times (10.8%)	
General information (12.6%)	
Told what government was doing	4.0
Reported possible cases	3.4
Symptoms of disease	2.8
Others	7.3
Not stated / Don't recall	14.2

* Percentages sum to more than 100% because respondnets were able to give more than one response to this question.

Recall of Media Coverage

1. Public Information Announcements

This section of the questionnaire dealt with awareness and recall of both the public information announcements of the media campaign as well as the news and editorial coverage provided through the various news media. With respect to the former, both awareness and recall were very good. As Figure 7 shows, 82% of all respondents recalled the public information announcements and, of those, 86% could recall specific content of the announcements.

There were a few differences across groups on levels of recall, but the most interesting were those found in relation to two previous questions dealing with the perception of risk. Those who recalled the announcements were much more likely to have answered that they did believe that there was a risk of contracting the disease than those who did not recall the announcements (70% vs. 46%) and, similarly, those who recalled the announcements were much more likely to have taken precautions to avoid mosquito bites than those who did not recall the announcements (73% vs. 59%). While there are a variety of possible explanations for this, one of the most plausible reasons is that the heightened perception of risk was a result of the exposure to the information campaign.

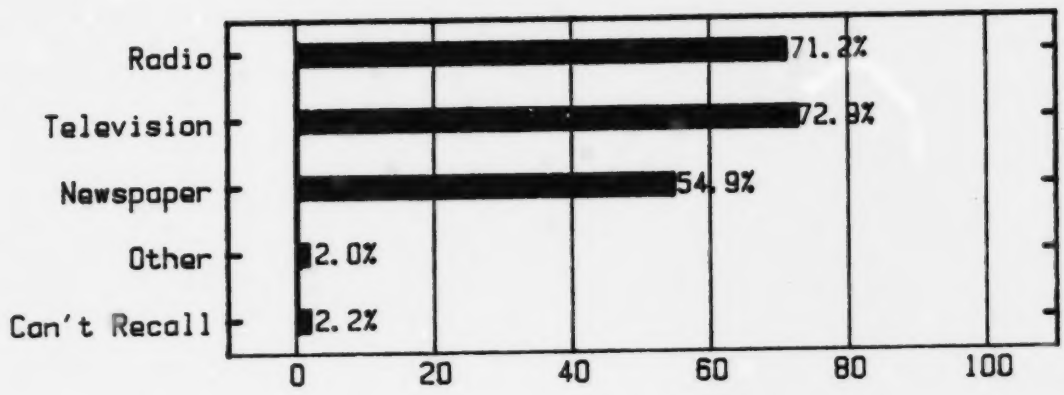
In an attempt to determine whether there were specific aspects of the materials used in the campaign which either helped or hindered their effectiveness, respondents were also asked what,

FIGURE 8

MEDIA RECALL

Question 11:

Can you recall on what media you heard or saw the ads dealing with the encephalitis problem? (n=824)



MEDIA COMPARISONS
(n=582)*

	Radio	TV	News papers	All the Same	Can't Say
Most Informative	24.6	36.8	19.8	14.6	3.8
Most Memorable	28.2	42.8	14.4	8.1	5.5
Most Effective	18.0	36.6	26.1	11.3	7.2
Least Informative	30.8	18.7	16.5	13.2	19.9
Liked Most	23.4	35.9	16.0	16.3	7.7
Liked Least	23.7	14.3	17.7	17.0	26.8

* This question was only asked of respondents who recalled more than one medium.

if anything, they liked and disliked most about them. Here the answers were unenlightening; only one-third could think of anything they liked and only about one-sixth could think of anything they disliked. Based on the findings of the qualitative research referred to earlier, however, these results would appear to be related to the fact that the announcements were perceived more as public service announcements rather than as advertisements and, consequently, those seeing or hearing them reacted to them accordingly.

The last questions in this section dealt with media recall. As Figure 8 shows, approximately equal numbers of respondents recalled seeing or hearing the announcements on television and radio (73% and 71% respectively) while somewhat fewer recalled seeing them in print (55%). Similarly, the television spots were considered most informative, most memorable, most likeable and most effective, followed by radio and then print. The exception to this was the ranking on most effective, which showed that the newspaper ads were considered more effective than radio ads.

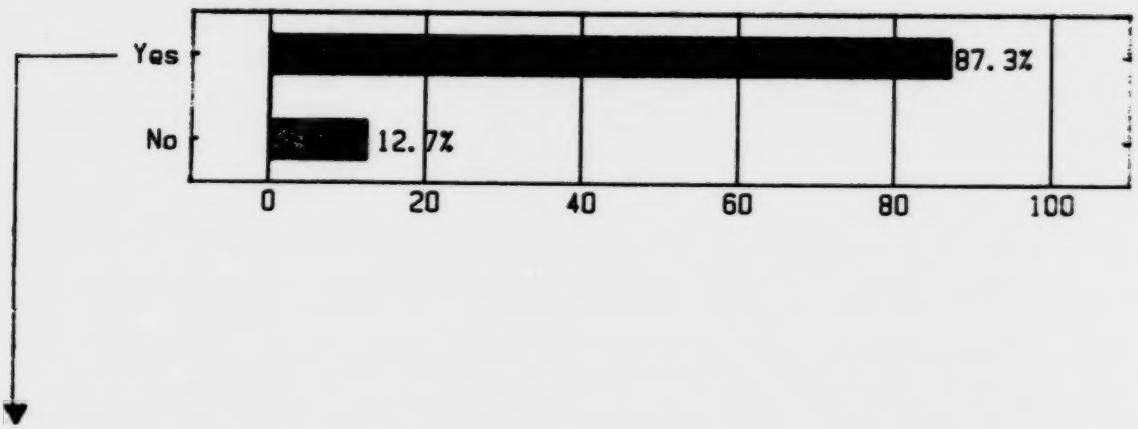
When considering these results, it should be noted that the relative strengths of these rankings are affected by the numbers of people who saw or heard the ads in each medium - thus the fact that newspaper ads received fewer mentions on almost every dimension is partly due to their lower frequency of recall. It should also be noted that frequency of placement of paid newspaper ads was considerably less than the frequency of paid radio and television messages.)

FIGURE 9

AWARENESS OF NEWS REPORTS

Question 13a:

Do you recall seeing or hearing any news reports about Western Equine Encephalitis over the summer?



Message Recall

	(%)*
Reported possible cases of W.E.E.	51.9
Aerial spraying	30.1
General information (14.7%)	
Times (5.4%)	
Locations (5.0%)	
Precautions (3.4%)	
Other (1.6%)	
Encephalitis is a dangerous disease	10.7
Reported cases in horses	10.4
Warned people to be careful, to take precautions	9.4
Controversy about control program	7.2
Mosquitoes carry disease	3.7
Testing of mosquitoes for W.E.E.	3.2
Reported government action on problem	3.0
Others	5.3
Can't recall	15.6

* Percentages sum to more than 100% because respondnets were able to give more than one response to this question.

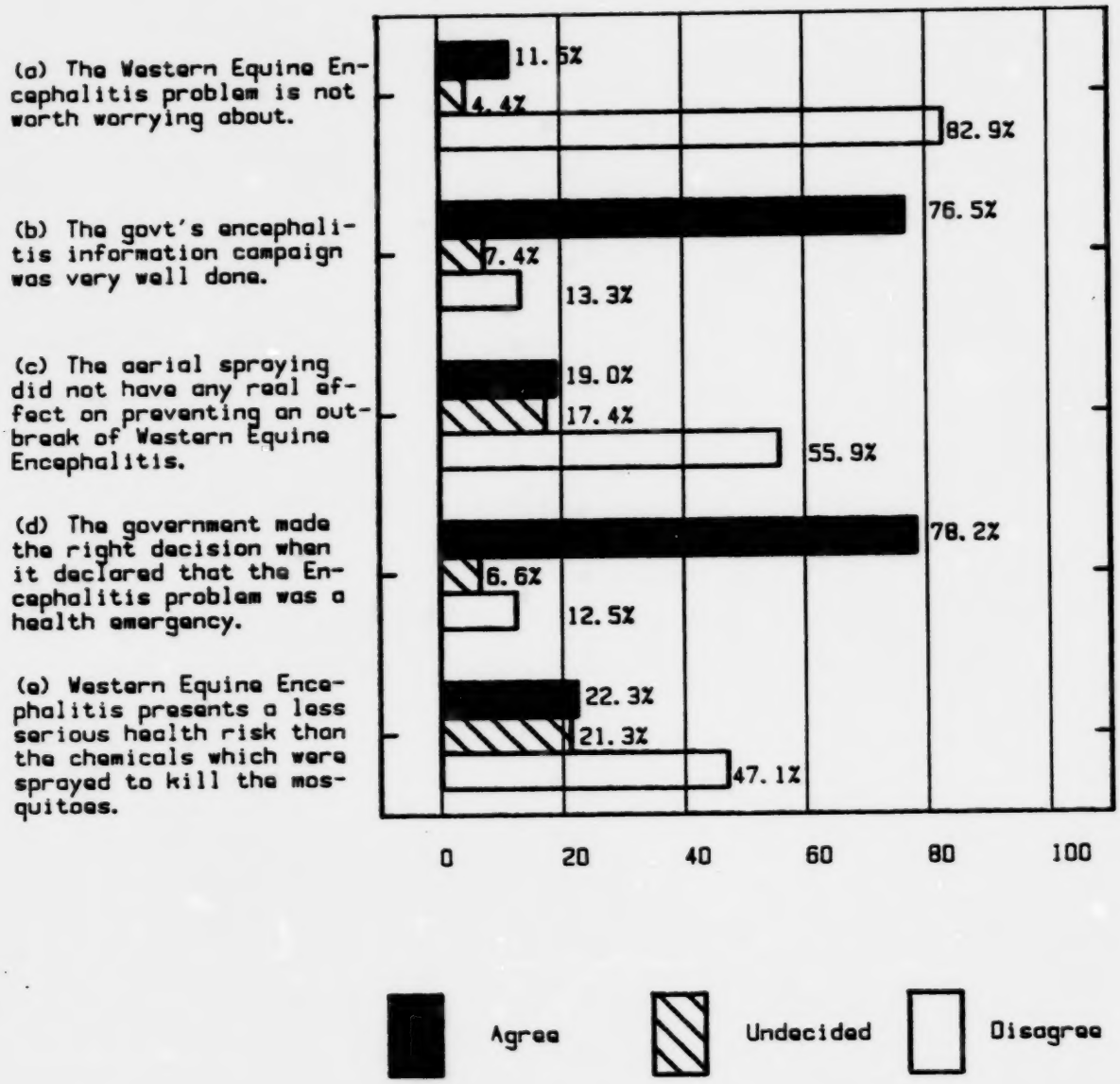
2. News Coverage

There was also a very high level of recall of news reports concerning Western Equine Encephalitis (87%; see Figure 9). Unlike the results for recall of the campaign spots, however, there were few meaningful differences between groups on recall of news reports. In particular, it is worth noting that there were no differences in perception of risk between those who recalled news reports and those who did not recall them. There was a difference, however, on their likelihood of taking precautions against bites (72% vs. 60% respectively) and on their likelihood of taking precautions against being sprayed (53% vs. 43% respectively).

In looking at the content of the news reports recalled, it was found that most people recalled either reports of possible cases of encephalitis (52%) or information on the aerial spraying program (30% - see Figure 9). Significantly, only a very few people recalled anything negative concerning the control program.

FIGURE 10

ATTITUDES TOWARD CONTROL PROGRAM



Attitudes and Beliefs

The final section of the questionnaire dealt with public attitudes and beliefs. First, respondents were read a series of five attitude statements and asked to indicate simply whether they agreed or disagreed with each statement. Second, they were asked to indicate whether each of a second set of five statements was true or false. The results for these two sets of questions are shown in Figure 10 and 11 and briefly described below.

1. Agree - Disagree Items

As Figure 10 shows, agreement (or disagreement) with all of the items used was quite substantial and in favour of the control program. Even for the two questions which showed the most negative reactions (c and e), there were as many people who were undecided or could not say as there were those who expressed a negative opinion.

Some of the specific findings for each question were as follows:

(a) "The Western Equine Encephalitis problem is not worth worrying about."

In spite of the fact that very few people on the whole agreed with this statement, there were several groups which showed much higher agreement than the average. Among the elderly (21%), those who lived alone (18%), and residents of Morden (22%) levels of agreement were all almost twice the average level. Not surprisingly, those who had said they believed there was no risk

and those who had not taken any precautions against bites were also much more likely to agree with this statement (21% and 19% respectively).

(b) "The government's encephalitis information campaign was very well done."

The very high level of agreement here (77%) certainly indicates a high level of approval of the campaign as a whole. Interestingly, this high level of agreement was quite consistent across all groups as well. The lowest reported level of agreement, which was found in the youngest age group, was still 71%.

(c) "The aerial spraying program did not have any real effect on preventing an outbreak of Western Equine Encephalitis."

As noted above, reactions to this statement were less favourable than reactions to the first two, but it should also be noted that there were still almost twice as many responses in the positive (i.e. disagree) direction as in the negative direction. The one group which really stood out on this question was that of the Brandon residents, among whom almost as many agreed with the statement as disagreed (33% vs. 39%).

(d) "The government made the right decision when it declared that the encephalitis problem was a health emergency."

If one had to choose one single question to indicate public approval or disapproval of the mosquito control program, this would be it. As Figure 10 shows, that approval was substantial.

FIGURE 11

MESSAGE RETENTION

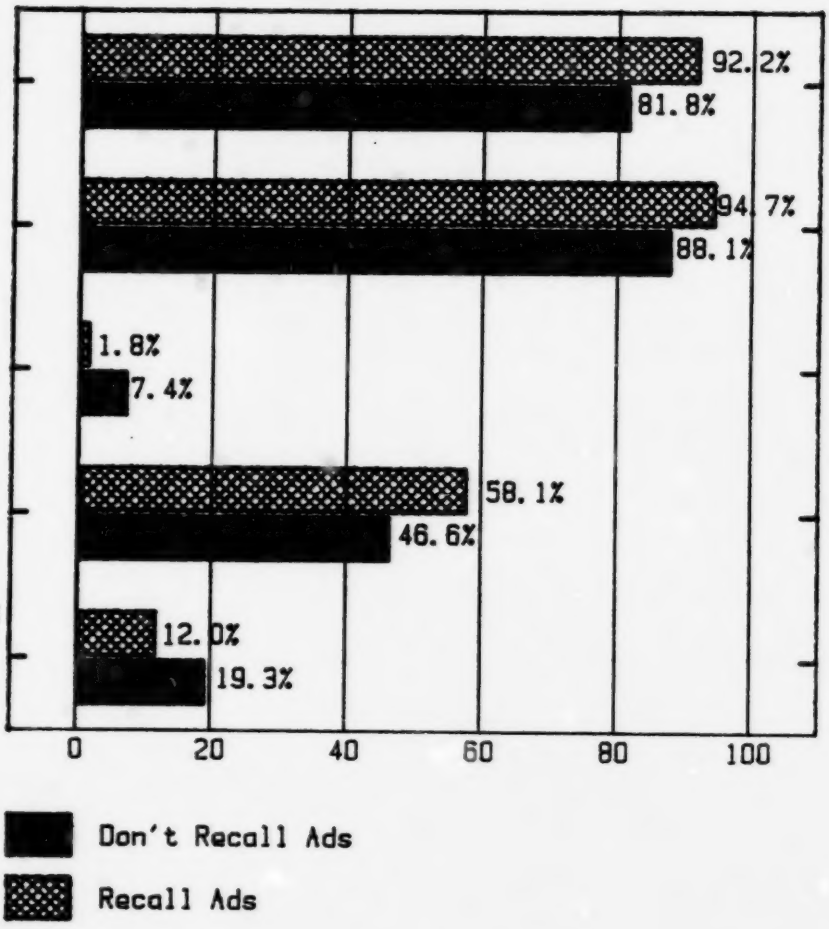
(a) The gov't information campaign said that people need to take precautions against mosquitoes even if their community has been sprayed from the air.

(b) Horses may come down with encephalitis.

(c) Western Equine Encephalitis is not fatal to people.

(d) Western Equine Encephalitis is spread only by one kind of mosquito.

(e) A person who catches Western Equine Encephalitis will show symptoms within a day of being bitten.'



As with the last question, this approval was also quite general, with Brandon residents again being the least favourable (70%).

(e) "Western Equine Encephalitis presents a less serious health risk than the chemicals which were sprayed to kill the mosquitoes."

The last question in this section was intended to assess perceptions of the relative risks presented by the aerial spraying program as compared to the threat of an encephalitis outbreak. This was a very difficult question for the respondents - on average, there were more "undecided" and "don't know" responses than there were "agree" responses. Nonetheless, somewhere between 40 and 50 percent of respondents in each category indicated that they did not think the risk of encephalitis was less serious than that presented by the aerial spraying.

2. <u>True - False Items</u>

These items were intended to measure more directly the degree of recall of specific information which was presented by the media campaign. As Figure 11 indicates, all but one question showed results which were very strongly in the "correct" direction and, as with the previous questions, those which did not produce all "right" answers produced "don't knows" rather than "wrong" answers. Probably the most interesting result, however, is the distance between the answers of those who recalled seeing the ads and those who did not. This probably indicates that more people were exposed to the ads than admitted recalling them. Some of the specific findings for each question are as follows:

(a) "The government information campaign said that people need to take precautions against mosquitoes even if their community has been sprayed from the air."

This statement was judged to be false by very few people - only 4 percent, in fact. This finding was quite consistent across almost all groups. The lowest frequency of "true" responses, which was found among the elderly, was 83 percent.

(b) "Horses may come down with encephalitis."

This question elicited the highest frequency of "true" responses - 94 percent overall. There were no differences worth mentioning to be found among any of the groups examined.

(c) "Western Equine Encephalitis is not fatal to people."

This question also elicited a very high level of "correct" responses - only 3 percent of all respondents said that it was true. Even those who said they didn't believe that there was any risk to people in their community, did not believe that this was true, although they were less likely than most to call it false.

(d) "Western Equine Encephalitis is spread only by one kind of mosquito."

This question was a difficult question - fully 30 percent of all respondents said that they did not know whether or not it was true. Among those who could answer, however, most said that it was true (see Figure 11). For some reason, Selkirk residents were particularly likely to say that this was true (66%) but there were no other differences among groups worth mentioning.

(e) "A person who catches Western Equine Encephalitis will show symptoms within a day of being bitten."

The last question was also the most difficult - 42 percent of respondents could not answer this one. Again, however, of those who did, the majority answered in the "correct" direction (45% of all respondents answered "false" and only 13% answered "true"). There were several differences to be found between groups on this item. Selkirk residents, for example, again stood out from the rest with 56 percent answering correctly. Portage and Dauphin residents, on the other hand, gave fewer correct answers than the average (38% and 39% respectively). Two other findings were that the probability of a correct response decreased with age (from 54% in the youngest group to 26% in the oldest) and increased with household size (from 39% among those living along to 51% among those with households of more than 4 people).

IV. SUMMARY AND CONCLUSIONS

In attempting to draw conclusions from the results presented on the preceding pages, one is struck first by the very high levels of public awareness found in this survey. These levels seem to be largely attributable to the provincial government's public information campaign. Although one could argue that news coverage helped to produce high levels of public awareness, the high degree of recall of the specific information contained in the campaign materials, would tend to attribute much of public awareness specifically to the media campaign.

For our other conclusions, it is helpful to classify the results in terms of the objectives identified in the introduction to this report. These objectives, and the main findings which relate to them, are as follows:

1. To assess public perceptions of the health risk presented by Western Equine Encephalitis.

In terms of this objective, it can be said that the public surveyed perceived that encephalitis presented a public health risk in their own communities. For example, four-fifths of all respondents indicated without prompting that they believed that mosquitoes in Manitoba were carrying the encephalitis virus this summer, and two-thirds felt that this presented a health risk to people in their own communities. Furthermore, only one person in ten felt that the encephalitis problem was not worth worrying about. While 78% of respondents indicated that the government had

made the right decision when it declared the encephalitis problem a health emergency. Taken together, these and several of the other findings indicate that the general public believed that Western Equine Encephalitis did constitute a serious health risk this summer.

2. To assess public perceptions of the aerial spraying program.

The results which bear on this objective are somewhat less clear, only because respondents were never asked directly to indicate approval or disapproval of the spray program. It can be said, however, that awareness of the program was very high and that some degree of public approval of the program can be implied. As mentioned above, a large majority of people did approve of the health emergency declaration; if they had not approved of the spray program, overall approval of that declaration should have been much lower. It should also be noted that the majority of respondents who had an opinion felt that the spraying program had reduced the threat of Western Equine Encephalitis. Considering these results together with those from the earlier qualitative research, it seems fair to say that members of the public were to some extent concerned about the dangers of the aerial spraying program but they also felt that it was justified in view of the nature of the health problems which mosquitoes were presenting.

3. To identify the relative effectiveness of the different media used in the awareness campaign.

Because the content of the messages carried by all media was essentially the same, the only measures of relative effectiveness available were levels of recall for different media and retrospective evaluations of the different media by respondents. These measures are quite weak because of the problems of error inherent in retrospective data but they did indicate that television had the most impact, followed by radio, and then by print. This can be partly attributed to the fact that then frequency of broadcast media messages largely exceeded the frequency of paid newspaper messages.

4. To determine comprehension of message elements.

The results in this area were somewhat ambiguous. The true - false questions showed very good levels of recall of message elements, as did the questions on personal precautions and on ad content recall. However, the questions concerning differential susceptibility among various age groups (which figured prominently in the publicity materials) did not show the same high levels of comprehension. Overall, however, comprehension and acceptance of the messages was very good.

5. To identify what, if any, behavioral impact was produced by the public information campaign.

This is probably the most difficult kind of question to answer in any kind of research project. The link between attitudes and subsequent behavior is ill defined in any area and the accuracy of self reports of behavior is often questionable.

In spite of these problems, however, there is some evidence that a significant number of people in Manitoba did take actions which had been promoted by the campaign to avoid mosquito bites and to avoid exposure to the spray during the aerial spraying operations. To what extent these actions were directly attributable to the media campaign is difficult to assess.

To sum up the conclusions, it can be said that the results which the public information campaign had been designed to produce appear to have been achieved. Without a carefully designed pre- and post-study, it is not possible to identify the degree to which these results were directly attributable to the campaign. However, there is clear evidence from this study to indicate positive public awareness, action and concern with regard to the Western Equine Encephalitis problem, as well as favourable response to the actions taken by the provincial government to combat this problem during the health emergency period.

APPENDIX

Table of Confidence Bounds

This table provides confidence bounds on percentages found in a random sample taken from a large population. The column headings represent the observed percentages, and the row headings the actual sample sizes involved. To use the table, find the column corresponding to the observed percentage and move down that column to the row corresponding to the number of respondents on which the percentage was based. The number at the intersection is then the width of the confidence bound above and below the observed percentage.

In the present survey, for example, the question which asked whether mosquitoes represent a danger to people's health elicited "Yes" answers from 73.2% of the men and 81.6% of the women surveyed. Since there were 500 men and 500 women in the sample, the confidence intervals for these two findings are, therefore, approximately 73.5% ± 3.8% and 81.6% ± 3.5% respectively at the 95% confidence level. In short, we may presume that the same question would produce results within these ranges in 95 out of 100 samples similarly selected.

As a caution, it must be noted that these are approximations only, and are included as guidelines for the interpretation of results.

SAMPLE ERROR TOLERANCE AT 95% LEVEL

Where percentage shown is:

	1% or 99%	3% or 97%	5% or 95%	10% or 90%	15% or 85%	20% or 80%	25% or 74%	30% or 70%	35% or 75%	40% or 60%	45% or 55%	50% or 50%
100	1.95	3.34	4.27	4,88	7.00	7.84	8.49	8.98	9.35	9.60	9.75	9.80
150	1.59	2.73	3.49	4.80	5.71	6.40	6.93	7.33	7.63	7.84	7.96	8.00
200	1.38	2.36	3.02	4.16	4.95	5.54	6.00	6.35	6.61	6.79	6.89	6.93
250	1.23	2.11	2.70	3.72	4.43	4.96	5.37	5.68	5.91	6.07	6.17	6.20
300	1.13	1.93	2.47	3.39	4.04	4.53	4.90	5.19	5.40	5.54	5.63	5.66
400	0.98	1.67	2.14	2.94	3.50	3.92	4.24	4.49	4.67	4.80	4.88	4.90
500	0.87	1.50	1.91	2.63	3.13	3.51	3.80	4.02	4.18	4.29	4.36	4.38
600	0.80	1.36	1.74	2.40	2.86	3.20	3.46	3.67	3.82	3.92	3.98	4.00
800	0.69	1.18	1.51	2.08	2.47	2.77	3.00	3.18	3.31	3.39	3.45	3.46
1000	0.62	1.06	1.35	1.86	2.21	2.48	2.68	2.84	2.96	3.04	3.08	3.10
1200	0.56	0.97	1.23	1.70	2.01	2.26	2.45	2.59	2.70	2.77	2.81	2.83
1500	0.50	0.86	1.10	1.52	1.81	2.02	2.19	2.32	2.41	2.48	2.51	2.53
2000	0.44	0.75	0.96	1.31	1.56	1.75	1.90	2.01	2.09	2.15	2.18	2.19

CARD 01
I.D. ____ -6

CRITERION RESEARCH CORP.

PUBLIC HEALTH PROGRAMS SURVEY

TELEPHONE NO. ___ - ___ -7-13

PROJECT NO. 2801-83

AREA: Winnipeg ... 1
Selkirk 2
Portage 3
Morden 4
Brandon 5
Dauphin .... 6 -14

SEX: Male 1
Female .... 2 -15

Hello, my name is _____ and I'm calling from Criterion Research Corp. We're a professional survey research company based here in Manitoba, and today we are calling a random sample of Manitoba residents to ask their opinions on some public health issues.

For the purpose of this survey, I need to speak to either the male or female head of your household. Would that be you?

Yes ..... 1 PROCEED
No ..... 2 ASK TO SPEAK TO THAT PERSON. IF NOT AT HOME, ARRANGE TIME TO CALL BACK

1 2 3 4 5 6 7 8 9 -16

1. There has been a lot of talk about the mosquito problem in Manitoba this summer. Do you think that mosquitoes actually represent a danger to people's health?

Yes 1
No ..... 2 .49

2. Why do you say that?

_____ .50

IF WESTERN EQUINE ENCEPHALITIS NOT MENTIONED, ASK
3. Do you think that mosquitoes in Manitoba can spread any diseases dangerous to people.

Yes 1
No ..... 2 .52

4. What diseases are they? PROBE: Are there any others you can think of?

FIRST MENTION: _____ .53

SECOND MENTION: _____ .54

5. IF WESTERN EQUINE ENCEPHALITIS NOT MENTIONED IN Q.2 OR Q.4, ASK There has been some concern that mosquitoes are carrying a disease called Western Equine Encephalitis, or sleeping sickness. Had you heard about it?

Yes 1
No ..... 2 .55 TERMINATE AND TALLY

6. Do you think that there was any risk of people in your community catching Western Equine Encephalitis this summer?

Yes 1
No ..... 2 .56

7(a). Are there any age groups in particular that this encephalitis is especially dangerous to?

Yes 1
No 2
Don't Know ... 9 .57 SKIP TO Q.8

7(b). IF YES, What groups are they? PROBE: Are there any other groups it is especially dangerous to?

FIRST: _____ .58

SECOND: _____ .59

8(a). Did you personally take any precautions to avoid being bitten by mosquitoes this summer or to protect your family from being bitten?

Yes 1
No 2
Not stated ... 9 .60 GO TO Q.9(a)

8(b). IF YES, What did you do? PROBE: Was there anything else you did?

FIRST: _____ .61

SECOND: _____ .62

THIRD: _____ .63

9(a). Was an aerial spraying program to kill mosquitoes conducted in your community this summer?

Yes 1
No ..... 2 → GO TO Q.10(a)
Not stated ... 9

9(b). IF YES, What did they use to spray for mosquitoes? DO NOT READ LIST.

Baygon 1
Malathion 2
DDT 3
Others

Don't Know ... 9

9(c). Did you feel that you were given enough advance notice of the spraying?

Yes 1
No 2
Not stated ... 9

9(d). Did you personally take any precautions to avoid having yourself or your family exposed to the spray?

Yes 1
No 2
Not stated ... 9 → GO TO Q.10(a)

9(e). IF YES, What did you do? PROBE: Was there anything else you did?

FIRST: _____

SECOND: _____

THIRD: _____

10(a). Do you recall any <u>public information announcements</u> which talked about Western Equine Encephalitis or the mosquito abatement program?

Yes 1
No ..... 2 GO TO Q.13

10(b). Thinking first about the ads (or public information announcements) you saw or heard, what did they have to say?

FIRST: _____

PROBE: Can you recall anything else?

SECOND: _____

THIRD: _____

10(c). Was there anything in particular that you liked about those ads? IF YES, What was it you liked? RECORD ONLY ONE.

_____

10(d). Was there anything in particular that you disliked about those ads? IF YES, What was it you disliked? RECORD ONLY ONE.

_____

11. Can you recall on what media you heard or saw the ads dealing with the encephalitis problem? **PROBE.** Can you recall any other places where you saw or heard those ads? **CIRCLE ALL MENTIONS.**

Radio	1
TV	1
Newspapers	1
Magazines	1
Billboards	1
Bus Cards	1
Other (specify)	
Not stated	9

12. **FOR THOSE WHO RECALL MORE THAN ONE OF RADIO, TV, AND NEWSPAPERS ASK:** Which form of media would you say was (READ STATEMENT) **ROTATE.**

	RADIO	TV	PRINT	ALL THE SAME	OTHER	DON'T KNOW
(a) Most informative	1	2	3	4	8	9
(b) The one you remember the most	1	2	3	4	8	9
(c) The most effective in describing the encephalitis problem	1	2	3	4	8	9
(d) Least informative	1	2	3	4	8	9
(e) The one you liked most	1	2	3	4	8	9

Why do you say that?

_____

_____

(f) The one you liked least	1	2	3	4	8	9

Why do you say that?

_____

_____

13(a). Do you recall seeing or hearing any news reports about Western Equine Encephalitis over the summer?

Yes	1
No	2 — Go TO Q.14

13(b). **IF YES,** Do you remember what the news reports had to say about Western Equine Encephalitis or the mosquito abatement program?

CARD 03
I.D. _____

_____

_____

PROBE: Anything else?

SECOND: _____

THIRD: _____

14. To what extent would you agree with the following statements? **READ STATEMENT** Would you say that you agree or disagree with that statement?

	AGREE	UNDECIDED	DISAGREE	NOT STATED
(a) The Western Equine Encephalitis problem is not worth worrying about.	1	2	3	9
(b) The gov'ts encephalitis information campaign was very well done.	1	2	3	9
(c) The aerial spraying did not have any real effect on preventing an outbreak of Western Equine Encephalitis.	1	2	3	9
(d)The government made the right decision when it declared that the encephalitis problem was a health emergency.	1	2	3	9
(e) Western Equine Encephalitis presents a less serious health risk than the chemicals which were sprayed to kill the mosquitoes.	1	2	3	9

15. Now, I'm going to read you a short list of statements and, for each, I'd like you to tell me whether you think that statement is true or false? The first is ...

	TRUE	FALSE	DON'T KNOW
(a) Thegov't information campaign said that people need totake precautions against mosquitoes even if their community has been sprayed from the air.	1	2	9
(b) Horses may come down with encephalitis.	1	2	9
(c)Western Equine Encephalitis is not fatal to people.	1	2	9
(d) Western Equine Encephalitis is spread only by one kind of mosquito.	1	2	9
(e) A person who catches Western Equine Encephalitis will show symptoms within a day of being bitten.	1	2	9

DEMOGRAPHICS

Now, just a couple of questions to help with our statistical tabulations.

1. What age category are you in?

18-24	1
25-39	2
40-64	3
65 or over	4
Not stated/Refused	9

.35

2(a). How many people are there in your household?

_____ __ .36

2(b). How many are under six years of age?

_____ __ .37

THANK YOU FOR YOUR COOPERATION

POOR

QUALITY

ORIGINAL